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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,881	08/02/2001	Bret Rothenberg	RAD297	5226

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EXAMINER	
KUMAR, PANKAJ	

ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 12/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/920,881	ROTHENBERG, BRET	
	Examiner	Art Unit	
	Pankaj Kumar	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 August 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7 and 8* is/are rejected.

7)☒ Claim(s) *3-6 and 9-12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 7, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraishi 6,640,091 in view of Alpers 3,878,525. Here is how the references teach the claims:

3. As per claim 1: A transmitter for transmitting a transmit signal having a transmit frequency within a transmit frequency band, comprising: a high-low signal generator (Shiraishi fig. 3: 21 and 22) for generating an LO signal (Shiraishi fig. 3: outputs of 21 or 22) having an LO frequency lower than said transmit frequency band when said transmit frequency is in a lower part of said transmit frequency band and an LO frequency greater than said transmit frequency when said transmit frequency is in an upper part of said transmit frequency band; and an upconverter (Shiraishi fig. 3: 10') for using said LO signal (Shiraishi fig. 3: 10LO) for frequency upconverting an intermediate frequency (IF) signal to said transmit signal (Shiraishi col. 3 lines 37-38).

4. Shiraishi does not teach LO frequency lower than said transmit frequency band when said transmit frequency is in a lower part of said transmit frequency band and an LO frequency greater than said transmit frequency when said transmit frequency is in an upper part of said transmit frequency band.

5. What Alpers teaches is having an LO frequency lower than said transmit frequency band when said transmit frequency is in a lower part of said transmit frequency band (Alpers fig. 3: when the transmitter's frequency is declining as shown in solid line 1, the transmitter's frequency is in a lower part of the transmit frequency band and the LO frequency, dotted line 1, is at a lower frequency than the transmit frequency band) and an LO frequency greater than said transmit frequency when said transmit frequency is in an upper part of said transmit frequency band (Alpers fig. 3: when the transmitters frequency is rising as shown in solid line 4, the transmitter's frequency is in an upper part of the transmit frequency band and the LO frequency, dotted line 4, is at a higher frequency than the transmit frequency band) (Alpers col. 4 lines 8-21).

6. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the LO frequency lower than said transmit frequency band when said transmit frequency is in a lower part of said transmit frequency band and an LO frequency greater than said transmit frequency when said transmit frequency is in an upper part of said transmit frequency band as recited by the instant claims, because the combined teaching of Shiraishi with Alpers suggest frequency conversion as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Shiraishi with Alpers because Shiraishi suggests having multiple LO frequencies (something broad) in general and Alpers suggests the beneficial use of LO being lower or higher for heterodyning purposes (Alpers col. 3 lines 39-50) and also for changing the transmission frequency for counter-counter measures (Alpers col. 1 line 44) in the analogous art of frequency conversion.

7. As per claim 2: The transmitter of claim 1, further comprising: a digital to analog converter (DAC) using a sampling clock signal having a sampling clock frequency for converting a digital signal to said IF signal (applicant's specification background of the invention pages 2-3: DAC, IF), said IF signal having an IF frequency band having IF channel frequencies corresponding to transmit channel frequencies in said lower part of said transmit frequency band and having the same said IF channel frequencies corresponding to different transmit channel frequencies in said upper part of said transmit frequency band (applicant's specification fig. 1b: intermediate frequency bands are the same for transmitter frequencies being at both the lower and upper ranges).

8. As per claim 7: A method for transmitting a transmit signal having a transmit frequency within a transmit frequency band, comprising: generating an LO signal having an LO frequency lower than said transmit frequency band when said transmit frequency is in a lower part of said transmit frequency band and an LO frequency greater than said transmit frequency when said transmit frequency is in an upper part of said transmit frequency band; and using said LO signal for frequency upconverting an intermediate frequency signal to said transmit signal. (discussed above)

9. As per claim 8: The method of claim 7, further comprising: converting a digital signal to said IF signal using a sampling clock signal having a sampling clock frequency (applicant's specification background of the invention pages 2-3: DAC, IF), said IF signal having an IF

frequency band having IF channel frequencies corresponding to transmit channel frequencies in said lower part of said transmit frequency band and having the same said IF channel frequencies corresponding to different transmit channel frequencies in said upper part of said transmit frequency band (applicant's specification fig. 1b: intermediate frequency bands are the same for transmitter frequencies being at both the lower and upper ranges).

Allowable Subject Matter

10. Claims 3-6, 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (571) 272-3011. The examiner can normally be reached on Mon, Tues, Thurs and Fri after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PK

M. G/

MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER